News and Resources from the National Institutes of Health

Kidney Disease Research Updates

National Kidney and Urologic Diseases Information Clearinghouse Fall 2009

PLA$_2$R Target of Kidney Autoimmune Attack

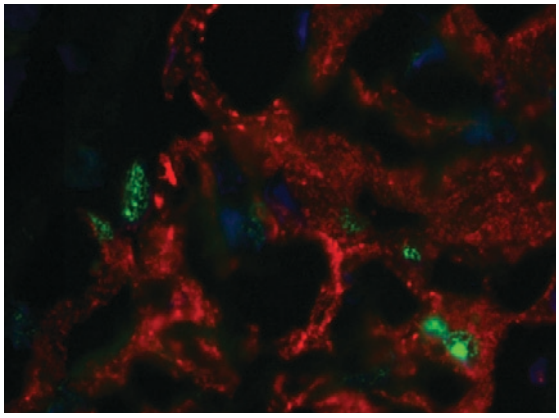
Scientists funded by the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK) have identified a key protein involved in idiopathic membranous nephropathy, a kidney disease. The protein, called M-type phospholipase A_2 receptor (PLA_2R), was found in the kidneys' filtering units, called glomeruli. Additionally, anti-PLA_2R antibodies were found in the blood and kidneys of people with idiopathic membranous nephropathy.

"Our findings show that PLA_2R is a major target antigen in idiopathic membranous nephropathy," wrote Laurence Beck Jr., M.D., Ph.D., assistant professor of medicine, Boston University, and colleagues in their report on the study, which appeared July 2 in *The New England Journal of Medicine.*

The findings open new doors to diagnostic tests and treatments for this important and devastating disease.

Mysterious Origins

Membranous nephropathy is characterized by the accumulation of immune deposits in the glomerular capillaries, which filter waste from blood while retaining protein the body needs. The immune deposits initiate a chain of events that ultimately compromises the integrity of the capillary wall, leading to leakage of protein into the urine, also called proteinuria. Over time, damage to the capillary wall can become more prominent and lead to kidney failure. Systemic lupus erythematosus, hepatitis B, and some forms of cancer can cause so-called "secondary" membranous nephropathy, but the most common form is idiopathic, which means the cause is unknown.



Glomerular capillary loops from normal kidney tissue stained with anti-PLA_2R antibody (red)

For years, mystery surrounded the mechanism causing the formation of these immune deposits. Recently, scientists at the Boston University School of Medicine found unique antibodies present in the blood of people with idiopathic membranous nephropathy. These antibodies recognized a specific protein in glomerular tissue extracts that were taken from normal kidneys.

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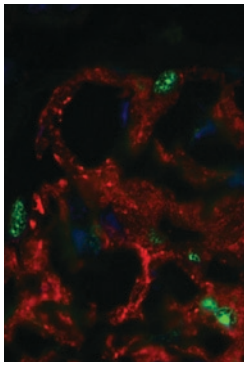
NIDDK
NATIONAL INSTITUTE OF DIABETES AND DIGESTIVE AND KIDNEY DISEASES



"The present observations of Beck, et al., represent a major breakthrough that will almost certainly initiate a new era of investigation into human membranous nephropathy."

Richard J. Glassock, M.D.
Professor Emeritus, David Geffen School of Medicine, University of California, Los Angeles

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Upon purification, the scientists learned the protein was PLA_2R. Although its functional role in the glomerulus is unclear, PLA_2R is one of four mammalian members of the mannose-receptor family.

Analysis of sectioned normal kidney tissue stained with anti-PLA_2R antibody showed PLA_2R to be present on podocytes—cells that line the glomerular membrane and prevent protein from leaking into the urine.

"The expression of PLA_2R on podocytes is a new finding and is very relevant to the paradigm of how antibodies to podocyte proteins can lead to proteinuria," said Beck. "The finding supports the hypothesis that autoantibodies against PLA_2R could cause disease."

Additionally, in sectioned kidney tissue from individuals with idiopathic membranous nephropathy, PLA_2R was found in the immune deposits located immediately adjacent to the podocytes. Combined with the observation that PLA_2R antibodies were absent in blood from people with secondary membranous nephropathy and controls, the finding strongly suggests the immune deposits are actively formed in the glomerular capillaries and not elsewhere in the body, as some researchers had believed.

Major Breakthrough

"The present observations of Beck, et al., represent a major breakthrough that will almost certainly initiate a new era of investigation into human membranous nephropathy," wrote Richard J. Glassock, M.D., professor emeritus at the David Geffen School of Medicine, University of California, Los Angeles, in a companion editorial. "Five decades after its initial recognition, membranous nephropathy is now entering an exciting, dynamic new era."

In addition to shedding light on the pathogenesis of this enigmatic disease and other autoimmune disorders, discovery of PLA_2R as a central autoimmune target in membranous nephropathy will potentially enable the development of noninvasive assays for diagnosing and monitoring disease and response to treatment.

The NIDDK has health information about glomerular diseases and other kidney diseases. For free fact sheets and easy-to-read booklets, visit *www.kidney.niddk.nih.gov.* ■

Kidney Disease
Research Updates

NKUDIC
www.kidney.niddk.nih.gov

Kidney Disease Research Updates, an email newsletter, is sent to subscribers by the National Kidney and Urologic Diseases Information Clearinghouse (NKUDIC). The newsletter features news about kidney disease, special events, patient and professional meetings, and new publications available from the NKUDIC and other organizations.

If you would like to subscribe, go to *http://catalog.niddk.nih.gov/newsletter.cfm*. You can read or download a PDF version of the newsletter at *www.kidney.niddk.nih.gov/about/newsletter.htm*.

Executive Editor: Andrew S. Narva, M.D., F.A.C.P.

Dr. Narva is the director of the National Kidney Disease Education Program (NKDEP) within the National Institute of Diabetes and Digestive and Kidney Diseases. Prior to joining the NKDEP in 2006, he served as chief clinical consultant for nephrology and director of the Kidney Disease Program for the Indian Health Service. He has served as a member of the medical review board of ESRD Network 15, as a member of the steering committee of the National Kidney Foundation Kidney Early Evaluation Program (KEEP), and on the Kidney Disease Outcomes Quality Initiative (KDOQI) Diabetes and Chronic Kidney Disease Workgroup.

Lower Socioeconomic and Education Status Associated with Reduced Kidney Function and More CVD

Baseline Results of the CRIC Study Reported

"The strength of the CRIC Study lies in the diverse characteristics of the assembled cohort and the comprehensive data-collection activities that have been designed to address gaps in our understanding of CKD-associated morbidity and mortality and to identify potential targets for trials of preventative therapies."

James P. Lash, M.D.
Associate Professor of Medicine, University of Illinois at Chicago, and co-authors

Researchers with the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK)-funded Chronic Renal Insufficiency Cohort (CRIC) Study have reported participants' baseline characteristics and associated kidney function data.

With the goal of identifying risk factors for chronic kidney disease (CKD) and cardiovascular disease (CVD) progression, the CRIC Study is the largest NIDDK-funded prospective cohort of CKD patients.

"The strength of the CRIC Study lies in the diverse characteristics of the assembled cohort and the comprehensive data-collection activities that have been designed to address gaps in our understanding of CKD-associated morbidity and mortality and to identify potential targets for trials of preventative therapies," wrote James P. Lash, M.D., associate professor of medicine, University of Illinois at Chicago, and co-authors, in their report, which appeared in the August 2009 issue of the *Clinical Journal of the American Society of Nephrology*.

Slowing CKD and CVD

The prevalence of CKD has risen dramatically during the past 30 years. An estimated 15 million adults in the United States have a glomerular filtration rate (GFR) of 60 or less. GFR is a measure of the kidneys' filtering capacity. Although CKD damage is usually not reversible, treatment can slow its progression. People with CKD are at higher risk of CVD, which accounts for nearly half of all deaths among hemodialysis patients.

By studying people with early-stage CKD, the CRIC Study hopes to identify better treatments and interventions to slow disease progression.

The CRIC Study enrolled 3,612 participants, ages 21 to 74, with mild to moderate CKD. At annual visits, researchers at seven clinical centers are collecting participants' health information, including data regarding kidney function and the development of CVD. A subgroup of participants is undergoing more intensive testing, which includes iothalamate clearance studies to measure GFR and electron-beam tomography to evaluate coronary heart disease. The study will continue to follow participants after progression to kidney failure and treatment with dialysis or transplantation.

Baseline Characteristics

At the baseline visit, researchers collected data regarding sociodemographic characteristics, medical history, lifestyle behaviors, and current medications. Body mass index (BMI)—an index of weight adjusted for height—blood pressure, and heart activity measured through electrocardiogram were assessed. Researchers also asked questions about quality of life, diet, physical activity, and mental health status.

At baseline, among CRIC Study participants,

- 45 percent were Caucasian, 46 percent were African American, 5 percent were Hispanic/Latino, and 4 percent were Asian, Pacific Islander, or Native American
- about 33 percent had completed a college education; 28 percent had annual incomes less than $20,000
- nearly 90 percent had a history of hypertension and 70 percent were taking high blood pressure medication

CRIC Study, continued on page 5

Hypoglycemia a Serious Risk for People with CKD

Hypoglycemia, or low blood sugar, is a serious risk for people with chronic kidney disease (CKD), especially among those with diabetes, according to an analysis of the records of more than a quarter-million patients. The analysis, which was funded by the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK), is the first epidemiological study to examine the incidence of hypoglycemia among patients with CKD.

"It is likely that the occurrence of hypoglycemia in patients with diabetes, with or without CKD, is largely related to use of diabetic therapies."

Maureen F. Moen
University of Maryland School of Medicine, and co-authors

"Our primary objective was to examine a large national cohort of patients to determine the incidence of hypoglycemia in patients with versus without CKD, both with and without diabetes," wrote Maureen F. Moen, a medical student at the University of Maryland School of Medicine, and co-authors in the June issue of the *Clinical Journal of the American Society of Nephrology*. Moen was a recipient of the American Society of Nephrology's Student Scholar Program, which provides funding for medical students to engage in basic or clinical research.

Dangerous Combination

People with CKD often have diabetes. In fact, diabetes is the single greatest cause of CKD. Current diabetes treatment guidelines emphasize intensive glucose control, the goal of which is to keep blood sugar as close to normal as possible to avoid long-term complications of high blood sugar, called hyperglycemia.

Treating diabetes in people with CKD, however, warrants special considerations, according to Moen and co-authors. CKD affects insulin metabolism and the body's ability to store glycogen and release glucose. And blood glucose-lowering diabetes drugs that are normally cleared by the kidneys may persist longer in the bloodstream of people with CKD. "The confluence of these factors may contribute to a greater risk for hypoglycemia among patients with CKD and may be an unintended consequence of therapy to treat hyperglycemia." In contrast to hyperglycemia's potential long-term complications, hypoglycemia can be an acutely dangerous condition resulting in disorientation, heart attack, or death.

Analysis

To gauge the incidence of hypoglycemia, the researchers analyzed data from a large cohort assembled by the Veteran's Health Administration. Included were participants who sought care between October 1, 2004, and September 30, 2005; had their kidney function assessed during the year prior to their visit; and had at least one blood glucose measure taken.

Hypoglycemic events and their severity were tabulated for four groups: CKD with diabetes, CKD without diabetes, no CKD with diabetes, and no CKD without diabetes. The cohort was about 96 percent male, 80 percent Caucasian, and 19 percent African American. Among the 29 percent of participants with CKD, about 50 percent had diabetes, whereas only about 33 percent of participants without CKD had diabetes.

Among participants with diabetes, the presence of CKD was associated with a twofold increase in the rate of hypoglycemic events. Nondiabetic participants with CKD also experienced a higher frequency of hypoglycemia. "It is likely that the occurrence of hypoglycemia in patients with diabetes, with or without CKD, is largely related to use of diabetic therapies," wrote Moen and

Hypoglycemia,
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CRIC Study, from page 3

- average BMI was 32.1, with more than half considered obese

CRIC Study participants with a relatively lower estimated GFR tended to be

- older, female, and Hispanic/Latino
- less educated, with annual incomes of less than $20,000
- more likely to have a BMI greater than 30
- more likely to have a history of cigarette smoking
- more likely to have high blood pressure, diabetes, CVD, and higher urine protein

Compared with CRIC Study participants without diabetes, participants with diabetes were

- less likely to be Caucasian
- less likely to have a college education
- almost twice as likely to have CVD
- more likely to have annual incomes less than $20,000
- more likely to have high blood pressure and obesity
- more likely to have lower estimated GFR and higher urine protein

Modifiable Risk Factors

"Noteworthy is the high prevalence of several potentially modifiable risk factors in this CKD cohort," wrote Lash and co-authors, referring to rates of high blood pressure, obesity, and smoking among study participants. "Longitudinal follow-up of CRIC participants will afford a more rigorous assessment of these newly recognized but less studied risk factors on CVD and CKD outcomes."

For more information about the CRIC Study, visit *www.cristudy.org.*

Fact sheets and easy-to-read booklets about kidney disease are available from the NIDDK. For more information and to obtain copies, visit *www.kidney.niddk.nih.gov.* ■

The Chronic Renal Insufficiency Cohort (CRIC) Study is being carried out at the following seven clinical centers and their satellites:

- Johns Hopkins University and the University of Maryland, Baltimore
- University of Illinois at Chicago
- University of Michigan, Ann Arbor; Wayne State University and St. John's Hospital, Detroit
- Kaiser Permanente of Northern California and the University of California, San Francisco
- Tulane University Health Science Center, New Orleans
- University Hospitals of Cleveland, the Cleveland Clinic Foundation, and MetroHealth Medical Center, Cleveland
- University of Pennsylvania Medical Center, Philadelphia (serves as a clinical center and the scientific and data coordinating center)

Hypoglycemia, from page 4

co-authors. "However, in the case of patients without diabetes and with CKD, the underlying cause is not entirely clear."

The researchers also measured hypoglycemic events occurring within 1 day of death, both in outpatient and inpatient settings. Risk of death increased with the severity of hypoglycemic events, but surprisingly, risk of death was generally lower among patients with CKD. The investigators attributed this phenomenon to "an unmeasured, increased intensity and quality of care in this patient population relative to patients without CKD."

The findings, according to the report, "may account for some portion of the excess cardiovascular morbidity and mortality seen in CKD." The authors urge care providers to consider the risk of hypoglycemia for both diabetes and CKD populations.

The NIDDK has fact sheets and easy-to-read booklets about CKD and diabetes. For more information or to obtain copies, visit *www.niddk.nih.gov.* ■

Collins Takes Helm at the National Institutes of Health

"Dr. Collins is one of the top scientists in the world, and his groundbreaking work has changed the very ways we consider our health and examine disease."

President Barack Obama

On August 17, Francis S. Collins, M.D., Ph.D., officially became the director of the National Institutes of Health (NIH). Nominated by President Barack Obama and unanimously confirmed by the U.S. Senate, he is the 16th NIH director.

"I am truly honored and humbled to take the helm today of the world's leading organization supporting biomedical research," Collins said. "The scientific opportunities in both the basic and clinical realms are unprecedented, and the talent and dedication of the grantees and the staff guarantee that this will be a truly exciting era."

Dr. Collins, 59, a physician-geneticist noted for his landmark discoveries of disease genes and his leadership of the Human Genome Project, served as director of the NIH's National Human Genome Research Institute (NHGRI) from 1993 to 2008. Under his direction, the Human Genome Project consistently met projected milestones ahead of schedule and under budget. This remarkable international project culminated in April 2003 with the completion of a finished sequence of the human DNA instruction book.

"The National Institutes of Health stands as a model when it comes to science and research," said President Obama upon nominating Collins. "My administration is committed to promoting scientific integrity and pioneering scientific research, and I am confident that Dr. Francis Collins will lead the NIH to achieve these goals. Dr. Collins is one of the top scientists in the world, and his groundbreaking work has changed the very ways we consider our health and examine disease."

In addition to his achievements as the NHGRI director, Collins' own research laboratory discovered a number of important genes, including those responsible for cystic fibrosis, neurofibromatosis, Huntington's disease, a familial endocrine cancer syndrome, and most recently, the gene that causes Hutchinson-Gilford progeria syndrome and genes for type 2 diabetes.

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The NIH Wants to Hear from You

The National Institutes of Health (NIH) has issued a Request for Information (RFI) to gather public input about the health information needs and information-seeking behaviors of NIH health consumer audiences. The Consumer Health Information RFI is a response to President Obama's January 21, 2009, directive to create greater transparency, public participation, and collaboration among federal agencies. Responses to the RFI will help the NIH develop and disseminate health, medical, and scientific information to a broader audience.

Members of the public and organizations are invited and encouraged to participate by completing a brief online survey. For more information, visit *https://nihhealthinforfi.cit.nih.gov.*

NIDDK Recovery Grant Funds Innovative Kidney Research Project for Students

Rural high school and college students from Arkansas, Kentucky, and Tennessee conducted kidney research last summer alongside a team of leading scientists at Vanderbilt University as part of an innovative program supported by American Recovery and Reinvestment Act (ARRA) funds.

Summer research interns at work in the lab

"The students who participate in this summer research program get hands-on experience in doing research in an academic setting, share in the excitement of scientific discovery, and gain the satisfaction of contributing to the advancement of biomedical knowledge."

Griffin P. Rodgers, M.D., M.A.C.P.
Director, NIDDK

The funds, part of a 2-year $320,720 stimulus grant awarded by the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK), supplement ongoing research led by Billy G. Hudson, Ph.D., professor of medicine, pathology, and biochemistry at Vanderbilt University Medical Center in Nashville, TN. Hudson's research focus is the glomeruli, the filters of the kidney, both in healthy kidneys and those scarred by diabetes.

"The students who participate in this summer research program get hands-on experience in doing research in an academic setting, share in the excitement of scientific discovery, and gain the satisfaction of contributing to the advancement of biomedical knowledge," said NIDDK Director Griffin P. Rodgers, M.D., M.A.C.P.

The prevalence of kidney disease has risen dramatically during the past 30 years. An estimated half-million people in the United States have kidney failure, the final stage of kidney disease, with diabetes contributing to about 45 percent of cases.

More than 20 students participated in the program. Students researched how collagen functions in glomerular disease and investigated the assembly of collagen networks by studying primitive organisms such as *Hydra,* sea anemone, sea urchins, sea stars, soft coral, and sponge. At the end of the program, students were encouraged to conduct experiments at their own schools and to stay in touch with their university mentors.

The Aspirnaut Initiative: Promoting Science in Rural America

The summer program enhances Vanderbilt University's Aspirnaut Initiative, a model program that promotes the entry of rural high school students into science, technology, engineering, and mathematics (STEM) careers.

"The students' experience in this summer research program gives them a sense of pride and rising expectations for academic achievement in their communities and illustrates the virtually untapped STEM talent pool in rural America," said Hudson. "In addition, this investment of Recovery Act funds helps us establish summer research internships as a key component of the Aspirnaut Initiative, which we hope will serve as a model for rural communities across the country."

The Aspirnaut Initiative was started by Hudson and his wife, Julie Hudson, M.D., assistant vice chancellor for health affairs at Vanderbilt University, in Arkansas in 2007.

An innovative feature of the Aspirnaut Initiative is the "school-begins-on-the-bus" concept for students who have 60- to 90-minute bus rides to and from school every day. The students are given Internet-connected laptops that they use to take courses in algebra, geometry, chemistry, and biology while the bus is in motion.

GRANT FUNDS KIDNEY RESEARCH,
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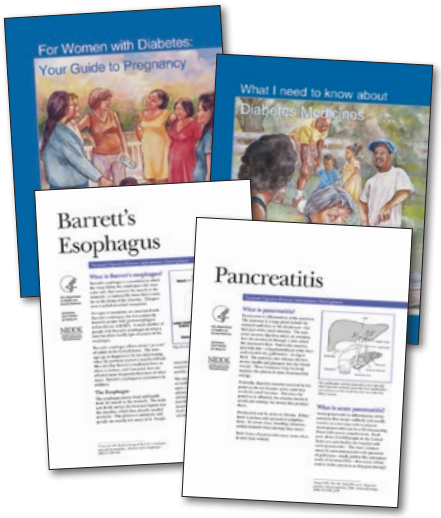
NIDDK Publications and Websites Win National Health Information Awards



Four publications and eight websites produced by the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK) have been recognized by the Health Information Resource Center (HIRC), a national clearinghouse for consumer health programs and materials.

In the 2009 National Health Information Awards competition, *For Women with Diabetes: Your Guide to Pregnancy* and *What I need to know about Diabetes Medicines,* by the National Diabetes Information Clearinghouse (NDIC), won bronze and merit awards, respectively. *Barrett's Esophagus* and *Pancreatitis*, by the National Digestive Diseases Information Clearinghouse (NDDIC), won merit awards.

NIDDK websites that won silver awards in the Spring/Summer 2008 Web Health Awards competition were the NDIC, the NDDIC, the National Hematologic Diseases Information Service, the Weight-control Information Network, the National Diabetes Education Program, and the Celiac Disease Awareness Campaign. The National Kidney Disease Education Program and the National Kidney and Urologic Diseases Information Clearinghouse websites won merit awards.

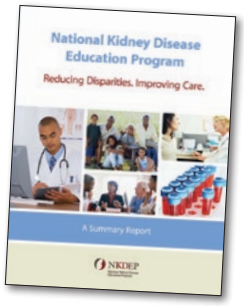
The National Health Information Awards and the Web Health Awards are organized by the HIRC. The goal of the awards is to provide a seal of quality for consumer health information.

To view the winning publications, visit the NDIC at *www.diabetes.niddk.nih.gov* and the NDDIC at *www.digestive.niddk.nih.gov.*

For links to the winning websites and other NIDDK-sponsored websites, visit *www.niddk.nih.gov.*

For more information about the National Health Information Awards, visit *www.healthawards.com.* ■

NKDEP Report Summarizes Accomplishments, Future Goals



The National Kidney Disease Education Program (NKDEP) has issued a report summarizing its activities, accomplishments, and future goals. Established in 2000, this National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK)-sponsored program plans to expand its work educating health care providers, individuals, and communities about chronic kidney disease (CKD).

"As more and more Americans are affected by CKD—due in part to rising rates of diabetes and high blood pressure—NKDEP's charge becomes even more important."

Griffin P. Rodgers, M.D., M.A.C.P.
Director, NIDDK

"As more and more Americans are affected by CKD—due in part to rising rates of diabetes and high blood pressure—NKDEP's charge becomes even more important," wrote NIDDK Director Griffin P. Rodgers, M.D., M.A.C.P., who prefaced the report.

CKD prevalence in the United States has grown 20 to 25 percent over the past 10 years, according to the report. About 23 million Americans have CKD, which disproportionately affects minorities. African Americans are four times more likely than Caucasians to develop kidney failure. Hispanics/Latinos with kidney failure have increased 65 percent since 1996.

Costs for CKD care take a heavy financial toll on health care systems; a staggering 25 percent of Medicare patients have CKD.

CKD most often results from diabetes and high blood pressure, and CKD can lead to kidney failure, requiring renal dialysis or kidney transplantation. Although treatment cannot reverse CKD damage, it can greatly slow its progression.

Education

Education is the NKDEP's chief strategy to reduce CKD-related morbidity and mortality. "Many of the therapeutic interventions for CKD are similar to those required for optimal diabetes care," according to the report. But unlike diabetes, which is frequently managed by primary care providers, CKD is too often treated as a "specialist" disease. As a result, primary care providers tend to "defer treatment prior to subspecialty referral, missing opportunities for early treatment."

The NKDEP develops tools that can be used in the primary health setting to detect early CKD and slow its progression. The NKDEP's *Explaining GFR Tear-off Pad,* which has been translated into Spanish, Chinese, and Vietnamese, helps care providers explain GFR, or glomerular filtration rate—a measure of kidney function—to patients. Understanding GFR and knowing how to interpret the results are critical first steps in initiating kidney-saving therapies and lifestyle changes.

The NKDEP works with communities to raise CKD awareness. Targeting African American communities, the NKDEP toolkit *Family Reunion Health Guide* helps get the word out about CKD at family events. The NKDEP also works with African American churches through its Kidney Sundays program, which provides talking points to help ministers educate their congregations about CKD.

Community health centers (CHCs)—where much of the CKD at-risk population gets care—are crucial NKDEP partners. The NKDEP's 2008-initiated Community Health Center-CKD pilot program is developing strategies to help CHCs incorporate CKD care into their practices. The pilot program arms providers with CKD resources and expertise to help patients

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Collins, from page 6

Collins has a longstanding interest in the interface between science and faith and has written about this in *The Language of God: A Scientist Presents Evidence for Belief* (Free Press, 2006), which spent many weeks on *The New York Times* bestseller list. He is the author of a new book on personalized medicine, *The Language of Life: DNA and the Revolution in Personalized Medicine* (HarperCollins, to be published in early 2010).

"As a scientist, physician, and passionate visionary, Dr. Collins will further NIH's ultimate mission to improve human health," said U.S. Department of Health and Human Services (HHS) Secretary Kathleen Sebelius. "He is an ideal choice to lead the NIH and I look forward to working closely with him."

Collins received a B.S. in chemistry from the University of Virginia, a Ph.D. in physical chemistry from Yale University, and an M.D. with honors from the University of North Carolina at Chapel Hill. Prior to coming to the NIH in 1993, he spent 9 years on the faculty of the University of Michigan, where he was a Howard Hughes Medical Institute investigator. He is an elected member of the Institute of Medicine and the National Academy of Sciences. Collins was awarded the Presidential Medal of Freedom in November 2007.

The NIH includes 27 Institutes and Centers and is a component of the HHS. The NIH is the primary federal agency for conducting and supporting basic, clinical, and translational medical research, and it investigates the causes, treatments, and cures for both common and rare diseases.

For more information about Collins, visit *www.nih.gov/about/director.*

For more information about the NIH and its programs, visit *www.nih.gov.* ■

Grant Funds Kidney Research, from page 7

The program complements Vanderbilt University's ongoing Medical Student Research Program in Diabetes, also supported by the NIDDK. Two additional students in this year's program were supported by the Short-Term Education Program for Underrepresented Persons (STEP-UP), developed by the NIDDK's Office of Minority Health Research Coordination to introduce minority and disadvantaged students to medical research.

To learn more about the Aspirnaut Initiative, visit *www.aspirnaut.org.*

For more information about ARRA grants, visit *www2.niddk.nih.gov/Recovery.*

The National Kidney and Urologic Diseases Information Clearinghouse, an information dissemination service of the NIDDK, has fact sheets and easy-to-read booklets about kidney diseases. For more information or to obtain copies, visit *www.kidney.niddk.nih.gov.* ■

NKDEP Report, from page 9

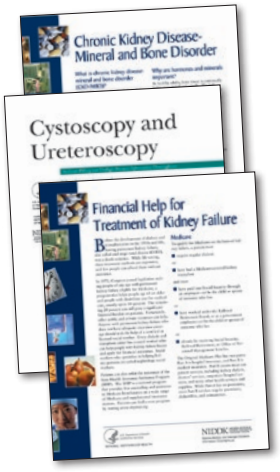
become more proactive in their own care. Short web videos, for example, were produced by the NKDEP to model provider-patient discussions about CKD.

Going forward, the NKDEP plans to expand its portfolio of CKD patient and provider education materials, its work with CHCs, and CKD programs aimed at diabetes educators, clinical pharmacists, nurse practitioners, and dialysis center staff.

To read the summary report, titled *Reducing Disparities. Improving Care.*, visit the NKDEP website at *www.nkdep.nih.gov.*

The NIDDK has information about CKD. For fact sheets and easy-to-read booklets, visit *www.kidney.niddk.nih.gov.* ■

Additional Resources



Updated Publications

The National Kidney and Urologic Diseases Information Clearinghouse has updated the following publications:

- *Chronic Kidney Disease-Mineral and Bone Disorder* (formerly *Renal Osteodystrophy*)
- *Cystoscopy and Ureteroscopy*
- *Financial Help for Treatment of Kidney Failure*

These publications are available at *www.kidney.niddk.nih.gov.*

New Interactive Tools

New to the Interactive Health Education Tools section of the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK) website is a podcast titled "Researchers Uncover Genetic Variants Linked to Blood Pressure in African Americans."

The NIDDK interactive tools section consolidates tools and resources about kidney disease from the National Institutes of Health and the National Library of Medicine. To access these resources, visit *www.kidney.niddk.nih.gov/resources/HealthTools.* ■

Upcoming Meetings, Workshops, and Conferences

Genetics of Urologic Malformations

The National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK) is gathering a dynamic group of geneticists, clinicians, and developmental biologists to discuss genetic approaches to vesicoureteral reflux—a common pediatric condition in which urine flows from the bladder back into the ureters. The meeting, titled "Genetics of Urologic Malformations," will take place in Crystal City, VA, December 7–8, 2009. For more information and to register for the meeting, visit *www3.niddk.nih.gov/fund/other/GVUR2009.* ■

NIH Publication No. 10–4531
October 2009